granite-paving stones, also, in consequence of getting a contract for the supply of 20,000 tons in place of an occasional order for small quantities, reduced his price from 20s. to 16s. 6d. per ton; and similar reductions have been effected with many others on the same principle.

A popularly-elected board for the management of the lighting, paving, cleansing, and sewering of the whole metropolis would be a great boon to the inhabitants.—FRIEND TO IMPROVEMENT.

ELECTRO-TELEGRAPHIC PROGRESS.

EXPERIMENTS with Mr. Bakewell's copying telegraph have been made between London and Brighton, with a view to test whether distance would interfere with the power of transmitting copies of writing. An instrument at the central office of the Electric-Telegraph Company, in Lothbury, was placed in connection with a corresponding instrument at the York Hotel, Brighton, and a communication in writing was opened between these stations. The trial, it is said, was perfectly successful. The writing formed by electro-chemical decomposition could be distinctly read and the signatures could be recognised. The rapidity with which the transmission was effected was about 150 letters a minute, and a much greater speed is said to be attainable in regular work. The messages were written in full, with capitals, points, and figures; but abbreviations, and even short-hand symbols might of course be used. This telegraph possesses peculiar means of obtaining secrecy as well as authenticity. Some of the communications were impressed invisibly on the paper, so that no trace of writing could be seen until the messages were washed with a solution that rendered them instantly legible. Thus the beau-ideal of the electric telegraph, as we regarded this very ingenious invention on its first announcement, seems to have been at length actually realized, and any one may now take his seat on a stool in Lothbury, and, with the flourish of a penholder radiating to the coast of his sea-girt abode, write his signature on documents lying "before him" on a desk scores of miles away from its cognate stool. Have we not here, too, already *a power* "much more akin to those of ancient magic than to those even of modern matter of fact?"——Amongst the most remarkable productions from Birmingham at the International Exhibition, there will be a piece of iron wire for telegraphic purposes, a mile long,—the greatest length of wire, it is said, that has ever been drawn.——The telegraph between Paris and Brussels has been opened. ——From experiments made on the wires of the telegraph of the Versailles Railway, the mean quickness of sound has been ascertained to be 3,485 metres per second,—more than double the speed laid down by Newton, Halley, Duhamel, and others. If any one had heretofore dared to contravene the stereotyped dicta of men so eminent on a such point, and to declare their calculations to be thus far defective, he would have certainly been denounced not only as a mistaken, but as little short of a sacrilegious, humbug: thus does an enlightened people venerate and believe in even the errors of their great men, and inaugurate them as the truth. Nevertheless, "all old things are passing away: all things are becoming new."

FIRE IN THAMES BANK DEPOSITORY.—We regret to learn that property estimated at an enormous value has been destroyed by a fire which occurred on Monday morning last, in the Thames Bank Depository, in the Ranelagh-road, Pimlico. It appears that the "Home for Artizans" during the International Exhibition, mentioned by us some time since, only constituted a portion of the same premises; and it is a curious circumstance that after our remarks were made on the "Home," the proprietor of the depository wrote to us, stating his fear that these remarks might lead depositors to suppose that their goods were in danger from fire if in such proximity to the "Home," whereas the depository was fireproof, and away from the "Home."

MACHINES FOR WORKING AND POLISHING MARBLE.

IN connection with the paper which we gave last week on the mechanical processes employed in sculpture, some of our readers have asked for particulars concerning the machines used for cutting, working, and polishing marble. We cannot supply their wants better than by availing ourselves of the information on this subject contained in the third volume of Mr. Holtzapffel's excellent work, "Turning and Chemical Manipulation."

"In the horizontal sawing machine for marble patented by Mr. James Tulloch in 1824, the entire arangements are combined in a very effective manner, for cutting a block of marble into a number of parallel slabs, of any thickness, at one operation. The iron framework of the machine, shown in fig. 1, consists of four vertical posts strongly connected together at the top and bottom, to form a stationary frame from 10 to 14 feet long, 4 to 5 feet wide, and 8 to 12 feet high, within which the block of marble to be sawn is placed. The two upright posts at each end of the stationary frame have, on their insides opposite to each other, perpendicular grooves, within each pair of which slides up and down a square vertical frame: to the lower end of each of these slides is affixed a spindle carrying two guide pulleys, or riggers, upon which the horizontal saw frame rests, and is reciprocated backwards and forwards. The saw frame is thus traversed within the fixed framing, and supported upon the four guide pulleys of the vertical slides, which latter are themselves suspended by chains coiled upon two small drums placed overhead. On the same spindle with the drums is a large wheel, to which a counterpoise weight is suspended by a chain. The weight of the counterpoise is so adjusted as to allow the saw frame to descend when left to itself, and which thus supplies the necessary pressure for causing the penetration of the saws. The saw frame is made rectangular, and from 2 to 3 feet longer than the distance between the vertical slides, in order to permit of the horizontal traverse of the saws, which is from 18 to 20 inches. To allow of the blades being fixed in the frame with the power of separate adjustment, every blade is secured by rivets in a clamp or buckle at each end: the one extremity of the buckle embraces the saw, the other is made as a hook: the buckle at one end of the saw is hooked upon a horizontal bar fixed across the end of the saw frame, and the opposite end of the frame has a groove extending its entire width, through which a separate hook, provided with a vertical tightening wedge, is inserted for every saw, which thus admits of being replaced without deranging the position of the neighbouring blades.

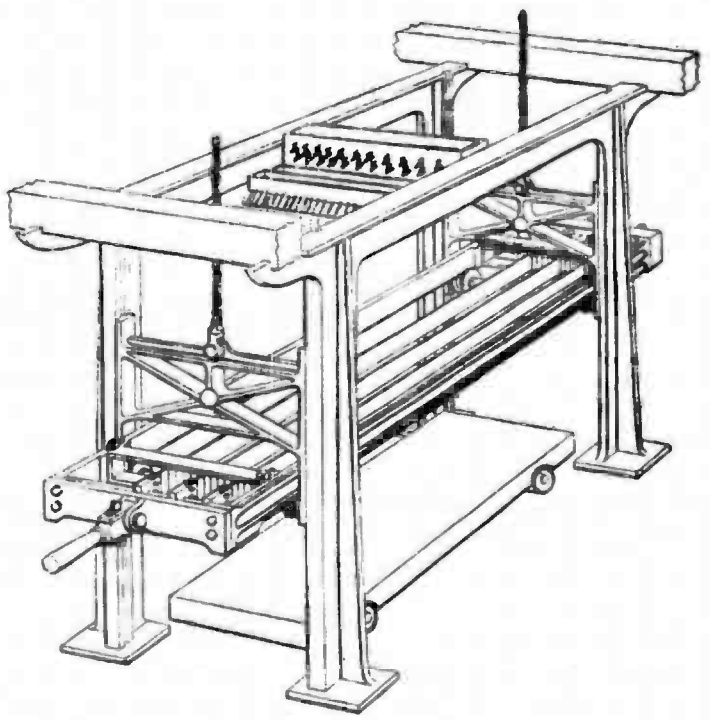

FIG. 1.

The distances between the saws, and their parallelism with the sides of the frame, are adjusted by means of iron blocks made of the exact thickness required in the slabs of marble: the blocks and blades are placed alternately, and every blade is separately strained by its tightening wedge until it is sufficiently tense. The blocks are sustained between two transverse bars, called *gage bars*, and are allowed to remain between the blades, to give them additional firmness.

The traverse of the saw frame is given by a jointed connecting rod, attached by an adjustable loop to a long vibrating pendulum, that is put in motion by a pair of connecting rods, placed one over the other, and leading from two cranks driven by the engine. All three connecting rods admit of vertical adjustment on the pendulum. The connecting rod of the saw frame is placed intermediately between the other two, but its exact position is regulated by the height at which the saws are working, as it is suspended by a chain and counterpoise weight, which allow it to descend gradually downwards on the pendulum, with the progress of the cut, so as always to keep the connecting rod nearly horizontal.

In the London Marble Works four of these sawing machines of different sizes are grouped together, with the driving shaft and pendulums in the middle, and so arranged that each pair of saw frames reciprocate in opposite directions at the same time, in order to balance the weight and reduce the vibration.

Another mode of traversing the saw-frame sometimes adopted, is by means of a vertical frame that is reciprocated horizontally, on slides, and the connecting rod, instead of being jointed, is fixed rigidly to the saw frame, and slides upon a vertical rod. Various other unimportant modifications in the construction of the machines are also adopted.

One of the most difficult points in the application of these machines, was found to be the supplying of the sand and water mechanically to the whole of the cuts at the same time. This is now successfully effected by the following arrangement. Above the block of marble to be sawn, is fixed a water cistern or trough, extending across the whole width of the frame, and measuring about one foot wide and one foot deep: about twenty small cocks are arranged along each side of the cistern, and a small but constant stream from each of the

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